

January 29, 2003

Mr. John Flynn
North America Packaging Corporation
6061 Guion Road
Indianapolis, Indiana 46254

Re: Registered Construction and Operation Status,
097-16528-00445

Dear Mr. Flynn

The application from North America Packaging Corporation received on December 3, 2002, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following emission units, located at 6061 Guion Road, Indianapolis, Indiana, are classified as registered:

- (a) One (1) screen printing operation, identified as Screen #1, constructed in 1980, with a maximum process rate of 125 bottles per hour.
- (b) Sixteen (16) blow molders, identified as EM #1 through #7, #9 through #12, and #14 through #18, constructed in 1980, with a total maximum capacity of 8,630 pounds of resin per hour.
- (c) Sixteen (16) grinders, identified as G #1 through #7, #9 through #12, and #14 through #18, constructed in 1980, with a total maximum capacity of 863 pounds of defective bottles per hour, each equipped with a cyclone that is considered integral to the process.
- (d) Sixteen (16) natural gas-fired flame treaters, constructed in 1980, with a total maximum heat input of 0.62 MMBtu/hr.
- (e) Four (4) plastic resin pellets storage silos, constructed in 1980, each with a maximum capacity of 58,280 pounds of plastic resin pellets.

The following conditions shall be applicable:

1. Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:
 - (a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.
2. Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the grinders shall not exceed 2.33 pounds per hour when operating at a process weight rate of 863 pounds per hour.

The pounds per hour limitation was calculated with the following equation:
Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour;
and

P = process weight rate in tons per hour

3. Pursuant to 326 IAC 2-5.5 (Registrations), the cyclones associated with the grinders must be in operation at all times the grinders are in operation.
4. Pursuant to 326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions), any change or modification which may increase the potential VOC emissions from the screen printing operation or the blow molding operation to greater than twenty-five (25) tons per year must be approved by the OAQ and OES before any such change may occur.

This registration is the first air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality and Office of Environmental Services that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

Compliance Branch
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

and

City of Indianapolis
Office of Environmental Services
2700 South Belmont Avenue
Indianapolis, Indiana 46221

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) and the City of Indianapolis, Office of Environmental Services (OES) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Office of Environmental Services (OES) has assigned the processing of this application to Eastern Research Group, Inc. (ERG). Therefore, questions should be directed to Yu-Lien Chu, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7871 to speak directly to Ms. Chu. Questions may also be directed to Monica Dick of my staff at (317) 327-2512.

Original Signed by John B. Chavez
John B. Chavez
Administrator
Office of Environmental Services

ERG/YC

cc: File - Marion County
Marion County Health Department
Air Compliance - Matt Mosier
Permit Tracking - Sara Cloe
Technical Support and Modeling - Michele Boner
Compliance Branch - Karen Nowak

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	North America Packaging Corporation
Address:	6061 Guion Road
City:	Indianapolis, Indiana 46254
Authorized individual:	John Flynn
Phone #:	(317) 297-4638
Registration #:	097-16528-00445

I hereby certify that North America Packaging Corporation is still in operation and is in compliance with the requirements of Registration 097-16528-00445.

Name (typed):
Title:
Signature:
Date:

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name:	North America Packaging Corporation
Source Location:	6061 Guion Road, Indianapolis, Indiana 46254
County:	Marion
SIC Code:	3081
Exemption Permit No.:	097-16528-00445
Permit Reviewer:	ERG/YC

The Office of Air Quality (OAQ) and Office of Environmental Service (OES) have reviewed an application from North America Packaging Corporation relating to the operation of a polyethylene bottle manufacturing plant.

Permitted Emission Units and Pollution Control Equipment

There are no permitted emission units at this source.

Unpermitted Emission Units and Pollution Control Equipment

- (a) One (1) screen printing operation, identified as Screen #1, constructed in 1980, with a maximum process rate of 125 bottles per hour.
- *(b) Sixteen (16) blow molders, identified as EM #1 through #7, #9 through #12, and #14 through #18, constructed in 1980, with a total maximum capacity of 8,630 pounds of resin per hour.
- *(c) Sixteen (16) grinders, identified as G #1 through #7, #9 through #12, and #14 through #18, constructed in 1980, with a total maximum capacity of 863 pounds of defective bottles per hour, each equipped with a cyclone that is considered integral to the process.
- *(d) Sixteen (16) natural gas-fired flame treaters, constructed in 1980, with a total maximum heat input of 0.62 MMBtu/hr.
- *(e) Four (4) plastic resin pellets storage silos, constructed in 1980, each with a maximum capacity of 58,280 pounds of plastic resin pellets.

*Note: The potential to emit from these units is less than the exemption thresholds defined in 326 IAC 2-1.1-3(e). Therefore, these emission units are exempt from the permitting requirements.

New Emission Units and Pollution Control Equipment Receiving Prior Approval

There are no new construction activities included in this permit.

Existing Approvals

This is the first air approval issued to this source.

Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that the cyclones be considered as an integral part of the grinders:

- (a) The cyclone is used to collect the plastic scraps after grinding the defective polyethylene bottles. The size of the ground plastic scraps are approximately 1/4 inch square.
- (b) The collection efficiency of each cyclone is greater than 99% and 100% of the collected plastic scraps are recycled back to the blow molding operations.
- (c) The grinding operation is configured such that the cyclones can not be bypassed. Therefore, no grinding can occur without the cyclones in operation.

IDEM, OAQ and OES have evaluated the justifications and agreed that the cyclones will be considered as an integral part of the grinding processes. Therefore, the permitting level will be determined using the potential to emit after the cyclones. Operating conditions in the proposed permit will specify that these cyclones shall operate at all times when the grinders are in operation.

Enforcement Issue

- (a) IDEM and OES are aware that equipment has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled *Unpermitted Emission Units and Pollution Control Equipment*.
- (b) IDEM and OES are reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 3, 2002, with additional information received on December 23, 2002.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, page 1 through 5).

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant,

including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

This table reflects the PTE before controls for the new emission units. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	5.29
PM-10	5.29
SO ₂	Negligible
VOC	2.52
CO	2.12
NO _x	0.27

HAP's	Potential To Emit (tons/year)
Glycol Ethers	1.69
Formaldehyde	0.02
Total	1.71

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-1.1-1(16)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (c) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of all criteria pollutants is less than 25 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-6.1.
- (d) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM, PM10, and a single HAP are greater than levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-5.5.1.
- (e) Fugitive Emissions
 Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

County Attainment Status

The source is located in Marion County.

Pollutant	Status
PM-10	Attainment
SO ₂	Maintenance Attainment
NO ₂	Attainment
Ozone	Maintenance Attainment
CO	Maintenance Attainment
Lead	Maintenance Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Marion County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, and 326 IAC 2-3, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	5.29
PM10	5.29
SO ₂	Negligible
VOC	2.52
CO	2.12
NO _x	0.27

This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more and it is not in one of the 28 listed source categories.

Part 70 Permit Determination

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) This source does not perform any rotogravure printing operations. Therefore, the New Source Performance Standards for Publication Rotogravure Printing (40 CFR 60.430-60.453, Subpart QQ) are not applicable.

- (c) This source does not perform rotogravure printing on flexible vinyl or urethane products. Therefore, the New Source Performance Standards for Flexible Vinyl and Urethane Coating and Printing (40 CFR Part 60.580 - 60.585, Subpart FFF) are not applicable.
- (d) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this source.
- (e) This source is not a major source of hazardous air pollutants and does not perform publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing. Therefore, the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for the Printing and Publishing Industry (40 CFR 63.820 - 63.839, Subpart KK) are not applicable.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

The source was constructed in 1980. The source is not in 1 of 28 source categories defined in 326 IAC 2-2-1(p)(1) and has the potential to emit any regulated pollutant before control less than two hundred and fifty (250) tons per year. Therefore, the requirements of 326 IAC 2-2 are not applicable.

326 IAC 2-4.1 (New Sources of Hazardous Air Pollutants)

The source was constructed prior to July 27, 1997 and the HAP emissions from the entire source are less than the major source thresholds. Therefore, the requirements of 326 IAC 2-4.1 are not applicable.

326 IAC 2-6 (Emission Reporting)

This source is located in Marion County and the potential to emit VOC and NO_x are less than ten (10) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of thirty percent (30%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Screen Printing Operation

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

The screen printing operation was constructed after January 1, 1980 and has the potential to emit VOC less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 are not applicable. Any change or modification which may increase the potential VOC emissions from the screen printing operation to greater than twenty-five (25) tons per year must be approved by the OAQ and OES before any such change may occur.

326 IAC 8-5-5 (Graphic Arts Operations)

The printing operation is not subject to 326 IAC 8-5-5 because the source does not perform packaging rotogravure, publication rotogravure, or flexographic printing.

State Rule Applicability - Sixteen (16) Molders

326 IAC 8-1-6 (General Reduction Requirements for VOC Emissions)

These sixteen (16) blow molders were constructed after January 1, 1980 and the total potential to emit VOC from the molding operation is less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 are not applicable. Any change or modification which may increase the potential VOC emissions from the molding operation to greater than twenty-five (25) tons per year must be approved by the OAQ and OES before any such change may occur.

326 IAC 6-3-2 (Manufacturing Processes)

Pursuant to 326 IAC 6-3-2(e), the allowable particulate emissions from each blow molder shall be limited to the pounds per hour limitation calculated using the following equation:

Interpolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

State Rule Applicability - Sixteen (16) Grinders

326 IAC 6-3-2 (Manufacturing Processes)

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the grinders shall not exceed 2.33 pounds per hour when operating at a process weight rate of 863 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour;} \\ \text{and} \\ P = \text{process weight rate in tons per hour}$$

The cyclones, which are integral to the process, shall operate at all times when the grinders are in operation.

State Rule Applicability - Sixteen (16) Gas-Fired Flame Treaters

There are no specifically applicable State or Federal rules applicable to the natural gas-fired flame treaters.

State Rule Applicability - Four (4) Resin Pellets Storage Silos

The resin pellets are in solid phase and are not breakable, there are no VOC and PM emissions from these storage silos.

Conclusion

The operation of this polyethylene bottle manufacturing plant shall be subject to the conditions of the attached proposed Registration 097-16528-00445.

**Appendix A: Emission Calculations
VOC and PM/PM10 Emissions
From the Screen Printing (Screen 1)**

**Company Name: North American Packaging Corporation
Address City IN Zip: 6061 Guion Road, Indianapolis, IN 46254
Registration: 097-16528-00455
Reviewer: ERG/YC
Date: December 23, 2002**

Material	Density (lb/gal)	Weight % Volatile (H ₂ O & Organics)	Weight % Water	Weight % Organics	Maximum Throughput (unit/hr)	Maximum Usage (gal/unit)	Pounds VOC per gallon of coating	Potential VOC (lbs/hr)	Potential VOC (lbs/day)	Potential VOC (tons/yr)
Screen Ink	8.45	47.00%	0.0%	47.0%	125.0	0.0004	3.97	0.20	4.77	0.87
Screen Wash	7.49	99.00%	0.0%	99.0%	125.0	0.0002	7.42	0.22	5.34	0.97
Total								0.42		1.84

METHODOLOGY

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC (lbs/hr) = Pounds of VOC per Gallon coating (lb/gal) * Max. Throughput (unit/hr) * Max. Usage (gal/unit)

Potential VOC (lbs/day) = Pounds of VOC per Gallon coating (lb/gal) * Max. Throughput (unit/hr) * Max. Usage (gal/unit) * (24 hr/day)

Potential VOC (tons/yr) = Pounds of VOC per Gallon coating (lb/gal) * Max. Throughput (unit/hr) * Max. Usage (gal/unit) * (8760 hr/yr) * (1 ton/2000 lbs)

**Appendix A: Emission Calculations
HAP Emissions
From the Screen Printing (Screen 1)**

**Company Name: North American Packaging Corporation
Address City IN Zip: 6061 Guion Road, Indianapolis, IN 46254
Registration: 097-16528-00455
Reviewer: ERG/YC
Date: December 23, 2002**

Material	Density (Lb/Gal)	Maximum Throughput (unit/hr/booth)	Maximum Usage (gal/unit)	Weight % Glycol Ethers	Glycol Ethers Emissions (tons/yr)	Weight % Formaldehyde	Formaldehyde Emissions (tons/yr)
Screen Ink	8.45	125.0	0.0004	38.56%	0.71	0.85%	0.02
Screen Wash	7.49	125.0	0.0002	99.00%	0.97	0.00%	0.00
Total					1.69		0.02

Total HAPs

1.71 tons/yr

METHODOLOGY

HAPs emission rate (tons/yr) = Density (lb/gal) x Max. Throughput (unit/hr) * Max. Usage (gal/unit) x Weight % HAP x 8760 hr/yr x 1 ton/2000 lbs

**Appendix A: Emissions Calculations
VOC, PM/PM10, and CO Emissions
From Sixteen (16) Blow Molders**

**Company Name: North American Packaging Corporation
Address City IN Zip: 6061 Guion Road, Indianapolis, IN 46254
Registration: 097-16528-00455
Reviewer: ERG/YC
Date: December 23, 2002**

Unit ID	Maximum Capacity (lbs/hour)	*VOC Emission Factor (lb/1,000,000 lbs)	PTE of VOC (lbs/hr)	PTE of VOC (ton/yr)	*PM/PM10 Emission Factor (weight ppm)	PTE of PM/PM10 (lbs/hr)	PTE of PM/PM10 (ton/yr)	**CO Emission Factor (weight ppm)	PTE of CO (lbs/hr)	PTE of CO (ton/yr)
EM1	300	17.7	0.0053	0.023	39.6	0.0119	0.052	50.0	0.0150	0.066
EM2	300	17.7	0.0053	0.023	39.6	0.0119	0.052	50.0	0.0150	0.066
EM3	460	17.7	0.0081	0.036	39.6	0.0182	0.080	50.0	0.0230	0.101
EM4	550	17.7	0.0097	0.043	39.6	0.0218	0.095	50.0	0.0275	0.120
EM5	500	17.7	0.0089	0.039	39.6	0.0198	0.087	50.0	0.0250	0.110
EM6	630	17.7	0.0112	0.049	39.6	0.0250	0.109	50.0	0.0315	0.138
EM7	630	17.7	0.0112	0.049	39.6	0.0250	0.109	50.0	0.0315	0.138
EM9	630	17.7	0.0112	0.049	39.6	0.0250	0.109	50.0	0.0315	0.138
EM10	460	17.7	0.0081	0.036	39.6	0.0182	0.080	50.0	0.0230	0.101
EM11	1400	17.7	0.0248	0.109	39.6	0.0555	0.243	50.0	0.0700	0.307
EM12	460	17.7	0.0081	0.036	39.6	0.0182	0.080	50.0	0.0230	0.101
EM14	480	17.7	0.0085	0.037	39.6	0.0190	0.083	50.0	0.0240	0.105
EM15	600	17.7	0.0106	0.047	39.6	0.0238	0.104	50.0	0.0300	0.131
EM16	300	17.7	0.0053	0.023	39.6	0.0119	0.052	50.0	0.0150	0.066
EM17	300	17.7	0.0053	0.023	39.6	0.0119	0.052	50.0	0.0150	0.066
EM18	630	17.7	0.0112	0.049	39.6	0.0250	0.109	50.0	0.0315	0.138
Total	8,630			0.67			1.50			1.89

*Emission factors for VOC and PM are from "Development of Emission Factors for Polyethylene Processing"(1996), Journal of Air and Waste Management, Volume 46, pp 569-580. Assume all PM emissions equal to PM10 emissions.

E.F. of VOC (lb/1,000,000 lbs) = (0.046 x t) ⁻³, where t = temperature = 450F

E.F. of PM (lb/1,000,000 lbs) = (0.3923 x t) ^{-136.9}, where t = temperature = 450F

** CO emission factor is from "Volatile Emissions During Thermoplastics Processing - A Review" (1995), Advances in Polymer Technology, Vol. 14, No. 1, pp. 67-77.

Methodology

PTE = Potential to Emit

Potential to Emit (lbs/hr) = Max. Capacity (lbs/hr) x Emission Factor (lbs/1,000,000 lbs)

Potential to Emit (tons/yr) = Max. Capacity (lbs/hr) x Emission Factor (lbs/1,000,000 lbs) x 8760 hr/yr x 1 ton/2000 lbs

**Appendix A: Emission Calculations
PM/PM10 Emissions
from Sixteen (16) Grinders**

**Company Name: North American Packaging Corporation
Address City IN Zip: 6061 Guion Road, Indianapolis, IN 46254
Registration: 097-16528-00455
Reviewer: ERG/YC
Date: December 23, 2002**

1. Process Description:

There is one grinder associated with each blow molder, and one cyclone connected to each grinder. The grinding operation is used to reduce the defects to a size about 0.25 inches square. The plastic scraps are collected by a cyclone, and all the collected material is recycled back to the molding process.

Number of Grinders:	16	
Maximum Input:	863 lbs/hr	(16 units total, assume 10% of the products are defects)
*Cyclone Efficiency:	99.9%	

*Note: The primary purpose of the cyclone is to collect the plastic scraps for recycle, not to control pollution. In addition, no grinding can occur without that the cyclones are in operation. Therefore, these cyclones are considered integral parts of the grinders and the potential to emit PM/PM10 is calculated based on the emissions after the cyclone.

2. Potential to Emit PM/PM10:

Assume all the PM emissions are PM10 emissions.

PM/PM10 PTE =	8630 lbs/hr x (1-99.9%) =	0.86 lbs/hr
PM/PM10 PTE (lbs/hr) =	0.86 lbs/hr x 8760 hr/yr x 1 ton/2000 lbs =	3.78 tons/yr

**Appendix A: Emission Calculations
Natural Gas Combustion
(MMBtu/hr < 100)
From 16 Flame Treaters (total = 0.62 MMBtu/hr)**

**Company Name: North American Packaging Corporation
Address City IN Zip: 6061 Guion Road, Indianapolis, IN 46254
Registration: 097-16528-00455
Reviewer: ERG/YC
Date: December 23, 2002**

Heat Input Capacity
MMBtu/hr
0.62 (16 units combined)

Potential Throughput
MMCF/yr
5.4

	Pollutant					
Emission Factor in lb/MMCF	PM*	PM10*	SO ₂	**NO _x	VOC	CO
	7.6	7.6	0.6	100	5.5	84.0
Potential Emission in tons/yr	0.02	0.02	1.6E-03	0.27	0.01	0.23

*PM and PM10 emission factors are condensable and filterable PM10 combined.

**Emission Factors for NO_x: Uncontrolled = 100, Low NO_x Burner = 50, Low NO_x Burners/Flue gas recirculation = 32

Methodology

All Emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF - 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP-42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (AP-42 Supplement D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton